

# Urothelial carcinoma of the bladder with asynchronous metastases to both testes

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**Abstract** Urothelial carcinoma (UC) or transitional cell carcinoma (TCC) of the bladder has a high likelihood of metastasis, and the more common sites of distant metastasis are bone, liver and lung. Metastasis to the testis is extremely rare. We identified five cases of bladder UC metastasizing to the testis in the literature, none of which occurred bilaterally. We present this case of asynchronous UC metastases to both testes as the first report in the literature. Metastatic disease should be considered as a potential differential diagnosis for testicular tumors arising in patients with a history of UC.

**Key Words:** Asynchronous, metastasis, testes, urothelial carcinoma

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## INTRODUCTION

Muscle-invasive urothelial carcinoma (UC) of the bladder is an aggressive malignancy with a high likelihood of metastasis. The most common sites of distant metastasis of UC are bone, liver and lung.<sup>[1,2]</sup> UC spread to the testis is rare. We report a case of asynchronous metastases of superficial bladder UC to both testes.

## CASE REPORT

A 71-year-old male presented with clot retention, with a large bladder mass consistent with UC identified by cystoscopy and subsequently fully resected via transurethral resection of bladder tumor (TURBT). Histology confirmed invasive (G3T2) UC with squamous differentiation. CT staging at the time [Figure 1] revealed a right upper lobe pulmonary nodule of 15 × 15

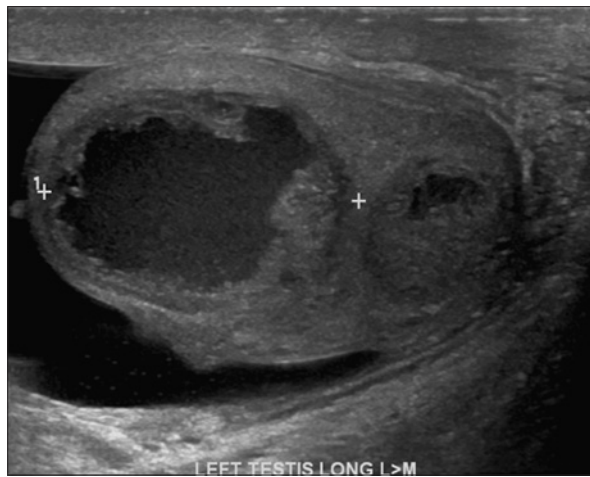
mm, and a fine needle aspirate confirmed malignant cells. A fluorodeoxyglucose (FDG) study demonstrated uptake only within the pulmonary lesion.

Treatment was initiated using 66 Gy radiotherapy plus gemcitabine-based chemotherapy. A reduction in the size of the lung metastasis was noted on subsequent FDG PET (PET: Positron emission tomography) scanning.

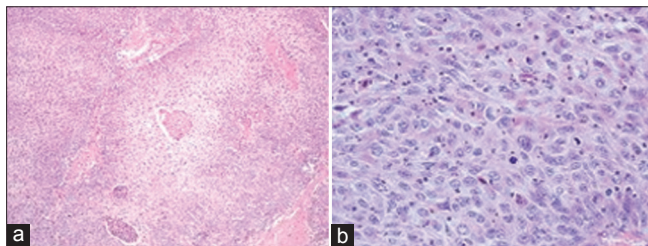
Approximately one year after his initial presentation, the patient noted painless swelling of his left testicle. Ultrasound [Figure 2] confirmed a mixed solid cystic lesion, which was treated by a left inguinal orchidectomy. Histology revealed metastatic UC. At that time, the right testis was normal; however, nine months later, he re-presented with a similar painless swelling in the other testicle and later went on to have a right inguinal orchidectomy. Serum tumor markers at both presentations were negative. Histology again confirmed metastatic UC, with squamous differentiation. The patient thereafter received three-monthly testosterone replacement. On repeat staging computerized tomography (CT), mediastinal lymphadenopathy was noted, but there was no other evidence of metastasis [Figure 3].

Subsequently, four-month surveillance CT revealed that the patient's disease had progressed with metastatic

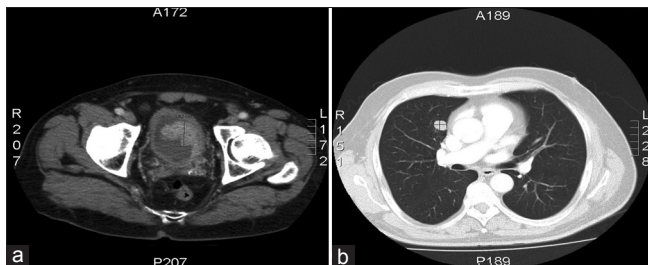
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**Figure 1:** Ultrasound of the left testis demonstrating a mixed solid-cystic lesion



**Figure 2:** Histopath (a) (x4 ) and (b) (x20) of Testis specimen showing TCC infiltration



**Figure 3:** (a) Staging CT at presentation demonstrating bladder TCC (marked). (b) Staging CT at presentation demonstrating initial pulmonary metastasis (marked)

disease developing in pulmonary and paratracheal tissue. Ultrasound-guided biopsy confirmed urothelial origin. Despite further systemic chemotherapy, the patient died approximately two years after his initial presentation.

## DISCUSSION

Metastatic tumors of the testis are extremely rare. Solid tumors reported to metastasize to the testis include the prostate, lung, melanoma, and kidney.<sup>[3]</sup> The largest retrospective study of

secondary neoplasms of the testis identified leukemia as the most common origin, and a review of 10 years' experience at the Mayo Clinic detected 20 cases of metastatic carcinoma of the testis, but no cases of metastatic UC of the testis were identified in either of these series.<sup>[4,5]</sup> We have identified five published reports of confirmed UC metastases of the testis, none of which was bilateral.<sup>[3,6-9]</sup>

The immunoprotective effect of the blood-testis barrier is thought to help limit the potential for metastatic deposits to this site. This same phenomenon may paradoxically limit the immune response and chemotherapeutic access to established metastatic deposits within the testes, permitting the relatively rapid growth of these lesions in this instance.<sup>[10]</sup>

Metastatic disease should be considered as a potential differential diagnosis for testicular tumors arising in patients with a history of UC.

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